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EXAMINER

MORAN, TIMOTHY J

ART UNIT

PAPER NUMBER

2878

DATE MAILED: 06/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/939,674

Applicant(s)

ODA, NAOKI

Examiner

Timothy J. Moran

Art Unit

2878

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 7-10 is/are rejected.
- 7) ☒ Claim(s) 6, 11, and 12 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3 and 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Specification***

The disclosure is objected to because of the following informalities:

On page 11, line 1, the term "an thermosensitive" should be replaced with --a thermosensitive--.

On page 25, line 17, the term "film 30" should be replaced with --film 29--.

On page 25, line 20, the term "film 20" should be replaced with --film 30--.

Appropriate correction is required.

### ***Claim Objections***

Claim 8 objected to because of the following informalities: A period should be added to the end of the claim. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 5 recites the limitation "said infrared ray reflector film" in line 2. There is insufficient antecedent basis for this limitation in the claim if the "absorbing member" option is considered in claim 4.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-4 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Oda, U. S. Patent No. 6,034,369. Regarding claim 1, Oda describes an infrared ray detector comprising a substrate, first and second thermosensitive resistors (fig. 5B, portions 542 on sections 504 and 503, col. 6, lines 59-67, col. 7, and col. 8, lines 1-22) having similar dimensions and being thermally isolated from one another and from said substrate, and a shield member (544, col. 8, lines 26-30) for shielding the second resistor.

Regarding claim 2, Oda teaches the use of a read circuit (fig. 1B, col. 3, lines 17-18) for reading a difference signal (col. 9, lines 28-40) representing the difference between the two resistors.

Regarding claim 3, Oda teaches the use of a bias current (col. 9, lines 35-40) and the canceling of signal components due to self-heating (drift occurred by the operating temperature).

Regarding claim 4, Oda teaches the use of an infrared absorbing film (col. 8, lines 26-30).

Regarding claim 10, Oda teaches the use of an array of pixels (col. 1, lines 1-18).

Claims 1-2, 4, and 10 are rejected under 35 U.S.C. 102(e) as being anticipated by Jost, U. S. Patent No. 6,410,916. Regarding claim 1, Jost describes an infrared ray detector comprising a substrate, first and second thermosensitive resistors (fig. 4C, resistors 66 and 68, col. 5, lines 18-43) having similar dimensions and being thermally isolated from one another and from said substrate, and a shield member (70) for shielding the second resistor.

Regarding claim 2, Jost teaches the use of a read circuit (col. 5, lines 36-43) for reading a difference signal representing the difference between the two resistors.

Regarding claim 4, Jost teaches the use of a metallic film (col. 5, lines 36-43), which in many cases will inherently act as an infrared reflector film.

Regarding claim 10, Jost teaches the use of an array of pixels (col. 1, lines 1-8).

Claims 1-2, 4, and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Akihiro, Japanese Patent Publication 2000-111397. Regarding claim 1, Akihiro describes an infrared ray detector comprising a substrate, first and second thermosensitive resistors (1st and 2nd bolometer elements, paragraph [0010]) having similar dimensions and being thermally isolated from one another and from said substrate, and a shield member (336, paragraph [0042, fig. 3C]) for shielding the second resistor.

Regarding claim 2, Akihiro teaches the use of a read circuit (paragraph [0011]) for reading a difference signal representing the difference between the two resistors.

Regarding claim 4, Akihiro teaches the use of a reflective film (paragraph [0042]).

Regarding claim 10, Akihiro teaches the use of an array of pixels (fig. 1).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Akihiro.

Regarding claim 5, the use of Al, Ti, or W as reflective materials is well known in the art of optical devices. Therefore it would have been obvious to one of ordinary skill in the art to use at least one of them in the detector of Akihiro as reflective materials.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Oda, Jost, or Akihiro as applied to claim 1 above, and further in view of Tomonari, U.S. Patent No. 5,426,412. Oda, Jost, and Akihiro do not teach the use of the a silicon oxy-nitride absorbing film. However, Tomonari teaches (col. 7, lines 30-54) that a silicon oxy-nitride film can be used as an absorbing film (14Gc) in an infrared ray detector. Therefore it would have been obvious to one of ordinary skill in the art to provide for a silicon oxy-nitride absorbing film in the detector of Oda, Jost, or Akihiro for the advantage of infrared radiation absorption.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Oda, Jost, or Akihiro as applied to claim 1 above, and further in view of Koskinen, U.S. Patent No. 5,589,689. Oda, Jost, and Akihiro do not teach the use of a metallic absorbing film. However, Koskinen teaches (col. 5, lines 8-17) that a metallic film can be used as an absorbing film in an infrared ray detector. Therefore it would have been obvious to one of ordinary skill in the art to provide for a metallic absorbing film in the detector of Oda, Jost, or Akihiro for the advantage of infrared radiation absorption.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Oda. Oda does not teach that the difference in heat capacity between the two sections is within 10%. However, in the absence of a showing of criticality, it is considered that it would have been obvious to one of ordinary skill in the art to provide for such a difference in the detector of Oda.

#### ***Allowable Subject Matter***

Claims 6, 11, and 12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: Claims 6, 11, and 12 include the limitations that an infrared ray absorbing member overhangs one resistor and is thermally coupled to another resistor.

#### ***Conclusion***

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy J. Moran whose telephone number is 703-305-0849. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta can be reached on 703-308-4852. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9318 for regular communications and 703-872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

T.M.

TM  
June 3, 2003

  
CONSTANTINE HANNAHER  
PRIMARY EXAMINER  
GROUP ART UNIT 2878